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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/369,386	08/06/1999	MOTOTAKA TANEYA	914-101	6727

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EXAMINER	
PIZIALI, JEFFREY J	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/369,386	TANEYA ET AL.	
	Examiner	Art Unit	
	Jeff Piziali	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-10,14,16,18,29 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-10,14,16,18,29 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 August 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *27 July 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 2-10, 14, 16, 18, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Takayama et al* (US 5,982,345 A -- referred to hereafter as *Takayama*) in view of the instant application's own '*Background of the Invention.*' [Note: Claim order has been rearranged numerically in this Office Action to better correspond to claim dependencies.]

Regarding independent claim 10, Takayama discloses an organic EL emission device (see Column 2, Lines 54-65), comprising: first [Fig. 2B; 2] and second [Fig. 2B; E] electrode layers, at least one [Fig. 2B; 2] of which is transparent; a light emission layer [Fig. 2B; I] for EL emission sandwiched between the first [Fig. 2B; 2] and second [Fig. 2B; E] electrode layers for together supplying prescribed electric fields to the light emission layer (see Column 3, Line 61 - Column 4, Line 19); and voltage application means [Fig. 1; S] for applying a voltage [Fig. 1; V] between an electrode [Fig. 1; Row 1] included in the first electrode layer [Fig. 2B; 2] and an electrode [Fig. 1; Column 1] included in the second electrode layer [Fig. 2B; E] and for injecting electric current [Fig. 1; via current restriction resistor R] into the light emission layer [Fig. 2B; I] (see Column 4, Lines 37-44), wherein at least the first electrode layer [Fig. 2B; 2] includes a plurality of electrodes arranged with spatial periodicity (see Fig. 1's matrix arrangement), the plurality of electrodes included in the first electrode layer [Fig. 2B; 2] together with adjacent regions in the second electrode layer [Fig. 2B; E] including at least one electrode form a plurality of electrode pair regions [Figs. 1 & 2B; e_1 and e_2] arranged with spatial periodicity (see Fig. 1's matrix arrangement), the voltage application means [Fig. 1; S] applies the prescribed electric fields in a manner such that the prescribed electric fields are always different from each other in polarity in adjacent electrode pair regions [Figs. 1 & 2B; e_1 and e_2] (see Column 7, Lines 5-12 --

wherein each adjacent pair of EL elements e_1 and e_2 are coupled with opposing polarities) and vary in a time-dependent manner [Table 4; t_1-t_4] (see Column 8, Lines 10-25).

Takayama teaches the EL elements [Fig. 2B; e_1 and e_2] being formed of a "double-hetero structure," in which the light emission layer [Fig. 2B; I] of an organic compound is sandwiched between a hole transporting layer [Fig. 2B; P] and an electron transporting layer [Fig. 2B; N]. Takayama does not explicitly disclose an alternate "two-layer structure" for eliminating the electron transporting layer [Fig. 2B; N], so that the organic layer [Fig. 2B; I] comes into direct contact with the second electrode layer [Fig. 2B; E].

However, the instant application's own 'Background of the Invention' discloses that such "a two-layer structure in which a hole transporting layer is stacked on an organic compound layer having both characteristics of an electron transporting layer and a light emission layer" (and which would inherently result in the organic layer coming into direct contact with the second electrode layer) is a basic EL element structural variant of Takayama's "double-hetero structure" (see Page 2, Lines 9-28 of the instant specification). As such, the instant application's own 'Background of the Invention' discloses that the "two-layer structure" and the "double-hetero structure" are well known viable alternatives.

Takayama and the instant application's own 'Background of the Invention' are analogous art because they are from the shared field of structural organic electroluminescent element arrangements for display devices. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any suitable known EL element structure, such as the "two-layer structure" or the "double-hetero structure," because it is within

the general skill of a worker in the art to select a known EL element structure on the basis of its suitability and desired characteristics.

Regarding claim 2, Takayama discloses electric fields with at least different polarity to be applied to electrode pair regions [Figs. 1 & 2B; e_1 and e_2] adjacent to each other among the plurality of electrode pair regions are varied with a constant time periodicity (see Column 4, Lines 20-65 -- i.e. row-by-row addressing scheme).

Regarding claim 3, Takayama discloses alternating voltages with opposite polarities are applied to electrode pair regions [Figs. 1 & 2B; e_1 and e_2] adjacent to each other among the plurality of electrode pair regions (see Column 7, Lines 5-12 -- wherein each adjacent pair of EL elements e_1 and e_2 are coupled with opposite polarities).

Regarding claim 4, Takayama discloses at least the first electrode layer [Fig. 2B; 2] includes a plurality of electrodes in one of a dot-like form [Fig. 2B; 2 & 2'] and a stripe-like form [Fig. 2A; W_1] (see Column 4, Lines 3-14).

Regarding claim 5, Takayama discloses the second electrode layer [Fig. 2B; E] includes a plurality of stripe-like electrodes [Fig. 2A; W_2] positioned in parallel (see Fig. 2B; i.e. parallel in the substrate 1 plane) to the plurality of stripe-like electrodes [Fig. 2A; W_1] included in the first electrode layer [Fig. 2B; 2] (see Fig. 2A; Column 3, Line 61 - Column 4, Line 14).

Regarding claim 6, Takayama discloses the second electrode layer [Fig. 2B; E] includes a plurality of stripe-like electrodes [Fig. 2A; W_2] arranged to intersect (see Fig. 2A) the plurality of stripe-like electrodes [Fig. 2A; W_1] included in the first electrode layer [Fig. 2B; 2] (see Column 3, Line 61 - Column 4, Line 14).

Regarding claim 7, Takayama discloses a first group of electrodes [Fig. 5; e_1 cathodes] including every other electrode [Fig. 5; at EL_{11} and EL_{13}, for instance] are electrically connected [Fig. 5; via Row 1] to each other, and a second group of electrodes [Fig. 5; e_2 cathodes] that remain beside the first group of electrodes [Fig. 5; e_1 cathodes] are electrically connected [Fig. 5; via Column 1] to each other in the first electrode layer [Fig. 2B; 2] (see Column 3, Line 61 - Column 4, Line 14).

Regarding claims 8 and 9, Takayama discloses a first group of electrodes [Fig. 5; e_2 anodes] including every other electrode [Fig. 5; at EL_{11} and EL_{13}, for instance] are electrically connected [Fig. 5; via Row 1] to each other, and a second group of electrodes [Fig. 5; e_1 anodes] that remain beside the first group of electrodes [Fig. 5; e_2 anodes] are electrically connected [Fig. 5; via Column 1] to each other in the second electrode layer [Fig. 2B; E] (see Column 3, Line 61 - Column 4, Line 14).

Regarding independent claim 14, this claim is rejected by the reasoning applied in the above rejection of claim 10.

Regarding claims 16 and 18, Takayama discloses an electron transport layer [Fig. 2B; E] formed between the second electrode layer [Fig. 2B; E] and the light emission layer [Fig. 2B; I]. Takayama does not explicitly refer to the electron transport layer [Fig. 2B; E] as an "insulation layer." However even if arguably one having ordinary skill in the art at the time the invention were to consider Takayama's electron transport layer [Fig. 2B; E] to be an "insulation layer," as explained above in the rejection of claim 10, the instant application's own 'Background of the Invention' discloses that the "two-layer structure" (which provides no such "insulation layer" between the second electrode layer and the light emission layer) and the "double-hetero structure" are well known viable EL element structure alternatives.

Regarding claims 29 and 30, Takayama discloses a common electrode [Fig. 1; Column 1] drive pulse [i.e. "-a" for time $t_1 + t_2$] applied to the second electrode layer [Fig. 2B; E] is twice as long (i.e. $t_1 + t_2$, compared to just t_1) as a segment electrode [Fig. 1; Row 1] drive pulse [i.e. "v" for time t_1 only] applied to the first electrode [Fig. 2B; 2] (see Column 4, Lines 37-58).

Response to Arguments

5. Applicants' arguments filed 18 July 2006 have been fully considered but they are not persuasive.

The applicants contend the cited prior art of *Takayama et al* (US 5,982,345 A) neglects teaching that a "voltage application means applies said prescribed electric fields in a manner such that said prescribed electric fields are always different from each other in polarity in

adjacent electrode pair regions and vary in a time-dependent manner" (see Pages 2-4 of the Response filed 18 July 2006). However, the examiner respectfully disagrees.

The applicants readily admit, "Takayama provides a pair of EL elements in parallel with opposite polarities so that when voltage supplied to the elements is positive a first element emits light and when it is negative the other element emits light" (see Page 2, Last Paragraph of the Response filed 18 July 2006).

However, the applicants allege, "At time t1 in Table 3 (sic) of Takayama, the same polarity is applied to all row electrodes and the same polarity is applied to all column electrodes; thus, the electric fields applied to all adjacent electrode pair regions cannot possibly be different in polarity at time t1 as required by claim 10. As another example, at time t3 in Table 3 (sic) of Takayama, the same polarity is applied to adjacent row electrodes R1 and R2 and the same polarity is applied to all column electrodes; thus, the electric fields applied to all adjacent electrode pair regions cannot possibly always be different in polarity at time t3 as required by claim 10. In particular, Figs. 1 and 2A of Takayama disclose that each cell EL comprises a pair of display elements el and e2 coupled in parallel with opposite polarities; Fig. 2 shows that those elements el and e2 (reversely connected) in each pixel EL neighbor each other. However, according to Figs. 1 and 2A of Takayama, element el of pixel EL11 and element el of pixel EL21 neighbor each other; and when voltages are applied according to Table 4 the same voltage of the same polarity is applied at times t1 and t3 to element el of pixel EL11 and element el of pixel

EL21 which neighbor each other" (see Page 3, Paragraphs 1-2 of the Response filed 18 July 2006).

Firstly, the examiner respectfully presumes the applicants mean to refer above to "Table 4" and not "Table 3," as "Table 3" neglects to recite any times whatsoever (see Column 8, Lines 1-25).

The primary reference, Takayama et al (US 5,982,345), teaches a first electrode layer [Fig. 2B; "transparent electrodes" 2 & 2'] adjacent (i.e. under) regions in a second electrode layer [Fig. 2B; "electrodes" E]. These first and second electrode layers together form a plurality of electrode pair regions [Figs. 1 & 2B; wherein "thin film display element" e1 comprises a first "electrode pair region" and "thin film display element" e2 comprises a second "electrode pair region"]. A voltage application means [Fig. 1; S] applies prescribed electric fields -- wherein these electric fields are an inherent result of voltages being applied between the first and second electrode layers for each corresponding thin film display element (see Column 3, Line 48 - Column 4, Line 29). The prescribed electric fields are always different from each other in polarity in all adjacent electrode pair regions, because:

A. Taking "adjacent" to mean "close to or lying near" (The American Heritage Dictionary of the English Language, 4th Edition); one having ordinary skill in the art would consider only the two "thin film display elements" [Fig. 1; e1 & e2] contained within each individual electroluminescent element [Fig. 1; EL11, EL12, EL21, and EL22] to constitute

"adjacent electrode pair regions," as instantly claimed. Under this commonly accepted definition, the distance (as seen in Figures 1 and 2A) between thin film display elements in different electroluminescent elements is simply too great to qualify as being "adjacent" to one another. As such, every pair of thin film display elements coupled in parallel to each other (i.e. all adjacent electrode pair regions) in each electroluminescent element, when voltage driven will produce prescribed electric fields that are always different from each other in polarity (see Column 4, Lines 5-8). Which is to say: [Fig. 1; EL11(e1)] will always be driven at a polarity different from adjacent [Fig. 1; EL11(e2)]; [Fig. 1; EL12(e1)] will always be driven at a polarity different from adjacent [Fig. 1; EL12(e2)]; and so on for all the electroluminescent elements.

B. Even if arguably an artisan would consider the distance between thin film display elements in different electroluminescent elements along a row (such as between Figure 5's EL11, EL12, EL13, and EL14) to be "adjacent" to one another; Takayama still teaches an active addressing method which results in the entire row [Fig. 5; Row 1] receiving a voltage "v" and the columns [Fig. 5; Columns 1-4] all alternating in unison between either a voltage "-2a" or a zero voltage (see "Table 4" at Column 8, Lines 15-25). At any given time [Table 4: t1-t4], all the electroluminescent elements [Fig. 5; EL11-14] along Row 1 will be driven by identical row and column voltages. Which is to say: [Fig. 5; EL11(e1)] will always be driven at a polarity different from adjacent [Fig. 5; EL11(e2)]; [Fig. 5; EL11(e2)] will always be driven at a polarity different from adjacent [Fig. 5; EL12(e1)]; [Fig. 5; EL12(e1)] will always be driven at a polarity different from adjacent [Fig. 5; EL12(e2)]; and so on for all the electroluminescent elements along the row (see Column 8, Lines 26-42).

It is noted that although Takayama illustrates 2x2 (see Fig. 1) and 4x4 (see Fig. 5) matrixes, any size of matrix is possible (see Column 8, Lines 46-48). Furthermore, none of the pending claims limits the instant invention to any particular minimum number of rows or columns. Therefore, only the adjacencies along a single row (and not between multiple different rows -- e.g., a 1x4 matrix) need be considered to read on the instant invention as presently claimed.

C. Even if a full 4x4 display matrix and the adjacencies between plural rows [Fig. 5; Rows 1-4] were considered; Takayama still teaches that at a given and recurring point in time [Table 4: t2] (wherein an active addressing repetition frequency of 60 Hz is taught at Column 5, Line 48); odd numbered rows [Fig. 5; Rows 1 & 3] receive a positive voltage "v," while even numbered rows [Fig. 5; Rows 2 & 4] receive a negative voltage "-v," and all the columns [Fig. 5; Columns 1-4] commonly receive voltage "-2a." Every 1/60 of a second thereafter, [Fig. 5; EL11(e1)] will always be driven at a polarity different from adjacent [Fig. 5; EL21(e1)]; [Fig. 5; EL11(e2)] will always be driven at a polarity different from adjacent [Fig. 5; EL21(e2)]; [Fig. 5; EL12(e1)] will always be driven at a polarity different from adjacent [Fig. 5; EL22(e1)]; [Fig. 5; EL12(e2)] will always be driven at a polarity different from adjacent [Fig. 5; EL22(e2)]; and so on for all the electroluminescent elements along each of the columns (see Column 8, Lines 26-42).

Therefore, it is the examiner's belief that there exists at least three distinct, yet combinable, ways in which the relied upon reference of Takayama teaches this instantly claimed limitation of a "voltage application means applies said prescribed electric fields in a manner such that said prescribed electric fields are always different from each other in polarity in adjacent electrode pair regions and vary in a time-dependent manner."

The applicants lastly allege, "New claims 29-30 require that a common electrode drive pulse is twice as long as a segment electrode drive pulse (e.g., see Fig. 3 of the instant application). The active matrix system of Takayama does not do this" (see Page 3, Paragraph 2 of the Response filed 18 July 2006). However, the examiner must again respectfully disagree.

The applicants are respectfully reminded that claims 29 and 30 haven't been "new" since they were first introduced in the Amendment filed 7 March 2005. In fact, this office action qualifies as the third time that claims 29 and 30 (which were amended by the applicants back on 6 February 2006) have been rejected.

In any event, Takayama discloses a common electrode [Fig. 1; Column 1] drive pulse [i.e. "-a" for time $t_1 + t_2$] applied to the second electrode layer [Fig. 2B; E] is twice as long (i.e. $t_1 + t_2$, compared to just t_1) as a segment electrode [Fig. 1; Row 1] drive pulse [i.e. "v" for time t_1 only] applied to the first electrode [Fig. 2B; 2] (see Column 4, Lines 37-58).

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeff Piziali
22 September 2006

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